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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/642,009 | 08/21/2000 | Akinori Yasutake | 080542/0151 | 9222 |

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EXAMINER

HENDRICKSON, STUART L

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1754

6

DATE MAILED: 09/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

642009

Applicant(s)

Mochida

Examiner

Wendrickson

Group Art Unit

1154

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 10/2/02

☒ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 6, 7, 20-52 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 6, 7, 20-52 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received

in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

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The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 33, 34, 37, 38, 47 and 48 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The 'free of ... acid' limitation is new matter.

Claims 31, 32 and 40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term 'high' is subjective and thus unclear.

Claims 6, 7 and 20-52 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 6106791. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims encompass the patented treatment temperatures. The examples provide the process details (heating time, etc.) of the dependent claims.

Claims 6, 7, 20-42 and 45-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ninomiya et al. taken with Japan '176.

Ninomiya teaches in columns 1-3, 5 and ex.1 contacting active carbon with NO_x, SO_x, water and oxygen. This differs in not teaching treated fibers, however the '176 abstract teaches treated active carbon fibers.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the '176 fibers in the process of Ninomiya because doing so fibers have a higher surface area (and thus active sites) per gram than spherical particles do, making the process more efficient. Further, it would treat the NO_x in the Ninomiya stream. The flow rate is an obvious optimization of throughput or scale of reaction; In re Boesch 205 USPQ 215.

Claims 6, 7 and 20-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada taken with Japan '176.

Hamada teaches in column 1, 3 and 4 contacting active carbon with NO_x, SO_x, water and oxygen. This differs in not teaching treated fibers, however the '176 abstract teaches treated active carbon fibers.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the '176 fibers in the process of Hamada because doing so fibers have a higher surface area (and thus active sites) per gram than spherical particles do, making the process more efficient. Further, it would treat the NO_x in the Hamada stream.

Applicant's arguments filed 7/22/02 have been fully considered but they are not persuasive. The '791 patent also explicitly claims treating SO_x. Spheres are known mathematically to encompass the maximum volume per unit area. So, a 1 gram mass of a material would have minimum surface area if compacted into a sphere and maximum area exposed to the air if pressed flat. Thus, it is seen that fibers have more of the material on the surface than spheres of the same material do. The references are combinable because '176 teaches a carbon material desired by the

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other references, and is deemed to be equally hydrophobic as the present fiber due to how it was made. Sulfuric acid forms in situ, so the fibers of the reference are also free of sulfuric acid contact 'prior to use'. It is also noted that many industrial systems release SO_x and NO_x, so a material for NO_x may also be simultaneously used for SO_x scrubbing. Therefore, these two technologies are not divergent and are used under similar conditions. It is not necessary for the US references to teach the characteristics of the carbon, as the JP reference is relied upon. Concerning claim 7, the fact that the stream first passed through a different desulfurization system does not detract from using the present system; coupling known systems for cumulative effect is an obvious expedient- Ex Parte Novak 16 USPQ 2d 2043.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication should be directed to examiner Hendrickson at telephone number (703) 308-2539.



Stuart Hendrickson
examiner Art Unit 1754